WARRANTY REGISTRATION
Register online today for a chance to win a FREE Tripp Lite product! www.tripplite.com/warranty

Owner's Manual

8- or 16-Port 1U Console KVM Switch or 16-Port 1U Rackmount KVM Switch

Model #: B020-008, B020-008-17, B020-016, B020-016-17 or B022-016

This package should consist of:

- 1 KVM Switch (B020-008, B020-008-17, B020-016, B020-016-17 or B022-016)
- 1 USB Keyboard/Mouse Adapter
- 1 Power Adapter with Power Cord
- Firmware Upgrade Cable
- 1 Owner's Manual with Quick Start Guide
- 1 Rackmount Kit (B022-016 only)

Check to see that the unit arrived undamaged, with all of its contents. Contact your dealer if there is a problem.

Tripp Lite World Headquarters
1111 W. 35th Street, Chicago, IL 60609 USA
(773) 869-1234, www.tripplite.com

NOTE: Follow these instructions and operating procedures to ensure correct performance and to prevent damage to this unit or to its connected devices.

Copyright © 2007 Tripp Lite. All rights reserved. All trademarks are the property of their respective owners.
The policy of Tripp Lite is one of continuous improvement. Specifications are subject to change without notice.

Table of Contents

Page

Overview **3**

System Requirements **4**
- Computers 4
- Console (for B022-016 only) 4
- Cables 4

Introduction **5-7**
- Front View 5
  - B020-008, B020-008-17, B020-016 and B020-016-17 5
  - B022-016 6
- Rear View 7
  - B020-008, B020-008-17, B020-016 and B020-016-17 7
  - B022-016 7

Installation **8-9**
- Single-Station Installation 8
- Daisy-Chaining Installation 8
- LCD OSD (On-Screen Display) Configuration 9

Basic Operation **10-11**
- Opening the Console 10
- Closing the Console 10
- Port Selection 10
- Hot Plugging 11
- Powering Off and Restarting 11
- Port ID Numbering 11
- Port Selection 11

Hotkeys **12-14**
- Hotkey Port Control 12
- Invoking the Hotkey Mode 12
- Selecting the Active Port 12
- Auto Scanning 12
- Setting the Scan Interval 13
- Starting Auto Scan 13
- Pausing in Auto Scan 13
- Skip Mode 14
- Hotkey Beeper Control 14
- Hotkey Summary Table 14

Page

OSD (On-Screen Display) Operation **15-20**
- OSD Overview 15
- OSD Navigation 15
- OSD Main Screen Headings 16
- OSD Functions 16-20
  - F1 Go To (GOTO) 16
  - F2 List Ports (LIST) 16
  - F3 Set Environment (SET) 17
  - F4 Administrator (ADM) 18-19
  - F5 Skip (SKP) 19
  - F6 Broadcast Mode (BRC) 19
  - F7 Scan (SCAN) 20
  - F8 Log Out (LOUT) 20

Firmware Upgrade Utility **21-24**
- Before You Begin 21
- Starting the Upgrade 22
- Upgrade Succeeded 23
- Upgrade Failed 23
- Firmware Upgrade Recovery 23-24

Appendix A **24-25**
- Computer Connection Table 24
- OSD (On-Screen Display) Factory Default Settings 24
- Troubleshooting 25
- Specifications 25

Appendix B **26**
- Clear Log-in Information 26

Appendix C **27**
- Standard Rack Mounting 27
- Optional Rack Mounting 28

Appendix D **28**
- FCC Radio/TV Interference Notice 28
- Warranty 28
- Warranty Registration 28

Overview

The B020-008, B020-008-17, B020-016, B020-016-17 and B022-016 KVM Switches allow access to multiple computers from a single console (keyboard, mouse, and monitor).

Features Include:

- Integrated KVM Console on the B020-016 and B020-008 Console KVM—Includes a 15" LCD Monitor, Keyboard and Touchpad in a 1U Rackmount Housing
- Integrated KVM Console on the B020-016-17 and B020-008-17 Console KVM—Includes a 17" LCD Monitor, Keyboard and Touchpad in a 1U Rackmount Housing
- Space-Saving Technology—Controls up to 16 Computers (B020-016, B022-016) or 8 Computers (B020-008)
- Daisy-Chain up to 31 more B022-016 KVMs—Control up to 512 Computers From a Single Console
- Modular Design on B020-008, B020-008-17, B020-016 and B020-016-17:
  - Console Detaches From the Switch Chassis for Easy Maintenance
  - Keyboard/Touchpad Module is Easily Removed for Quick Repair or Replacement—Eliminates Lengthy Downtime—No Need to Return the Switch to the Factory
- No Software Required—Select Computer via *Hotkeys* or Mouse Driven On- Screen Display (OSD) Menus
- Auto Scan Feature for Monitoring User—Selected Computers
- Hot Pluggable—Add/Remove Computers Without Powering Down the Switch
- Daisy-Chained Station Position Auto-Sensed—No Need For Manual DIP Switch Setting (Keyboard LED Indicates Station Position)
- Port Names Automatically Reconfigured When Station Sequence Is Changed
- Two-Level Password Security—Only Authorized Users View and Control the Computers (Up to Four Users Plus an Administrator; Separate Profiles For Each)
- Two-Level Log-out—Manual and Timed
- PS/2 Keyboard and Mouse Emulation—Computers Boot Even When the Console Focus is Elsewhere
- Superior Video Quality—Supports Resolutions of up to 1920 × 1440 on B022-016 KVM, 1024 × 768 on B020-016 and B020-008 Console KVM, and 1280 x 1024 on the B020-016-17 and B020-008-17 Console KVM
- Rack Mountable in 19" System Rack (1U)
- Upgradable Firmware
- External monitor, keyboard and mouse, or IP interface unit connection capability

System Requirements

Computer

• A VGA, SVGA or Multisync card.

Note: *On the B020-016 and B020-008, since the integrated LCD monitor's maximum resolution is 1024 × 768, the computer's resolution setting must not exceed 1024 × 768. The B020-016-17 and B020-008-17 have a maximum resolution of 1280 x 1024, so the computer's resolution setting must not exceed 1280 x 1024.*

• A 6-pin mini-DIN (PS/2 style) mouse port or USB Port.*

• Either

1. a 6-pin mini-DIN (PS/2 Style) keyboard port with +5V DC on pin 4 and ground on pin 3
2. a 5-pin DIN (AT Style) keyboard port with +5V DC on pin 5 and ground on pin 4.*
3. a USB port*

***** See the note under *Cables* in the next section.

Console (for B022-016 only):

• A VGA, SVGA, or Multisync monitor capable of the highest resolution that you will be using on any system in the installation.

• A PS/2 style mouse

• A PS/2 style keyboard

Cables:

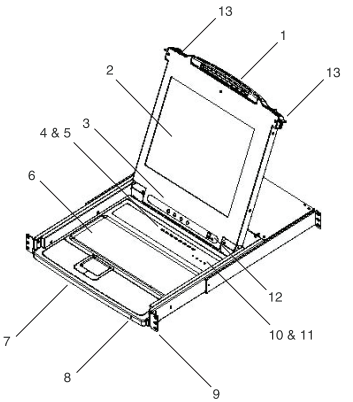
This KVM switch requires the following custom-wired premium cables:

Function	Tripp Lite Part
To Connect a PS/2 Computer to the KVM	P774-006 6' Cable P774-010 10' Cable P774-015 15' Cable
To Connect a USB Computer to the KVM	P776-006 6' Cable P776-010 10' Cable
USB Adapter (connects a USB system to the P774 series KVM cable)	B015-000
Daisy-Chain Cables	P772-002 2' Cable P772-006 6' Cable

Note: *1. The KVM Switches do not support serial mice. Using a Serial-to-PS/2 adapter will not work.*
2. If your computer has an AT-style keyboard socket, use a PS/2-to-AT keyboard adapter (Tripp Lite #P106-000) to enable the keyboard to plug the keyboard cable into the computer's keyboard port.

Introduction

Front View of Console KVM Switch



1. Handle
Pull to slide the KVM module out; push to slide the module in (see item 13 in this table).

2. LCD Display
After sliding the KVM module out, flip up the cover to access the LCD monitor.

3. LCD Controls
The LCD On/Off switch is located here, as well as buttons to control the position and picture settings of the LCD display. See p. 9 for details.

4. Port Switches
Press a switch to bring the KVM focus to the computer attached to its corresponding port. See p. 11 for details.

5. Port LEDs (either 16 or 8 LEDs depending on model)
Two Port LEDs are built into the Port Switches. The one on the left is the **On Line** LED; the one on the right is the **Selected Port** LED:

- An **On Line LED** lights ORANGE to indicate that the computer attached to its corresponding port is up and running.
- A **Selected LED** lights GREEN to indicate that the computer attached to its corresponding port is the one that has the KVM focus. The LED is steady under normal conditions, but flashes when its port is accessed under Auto Scan Mode (see p. 12).

6. Keyboard

7. Touchpad

8. Power LED
Lights BLUE to indicate that the unit is receiving power.

9. Rack Mounting Tabs
The rack mounting tabs located at each corner of the unit secure the chassis to a system rack. Refer to Appendix C (p. 27), for rack mounting details.

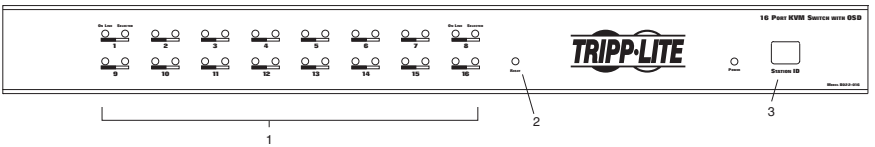
10. Lock LEDs
The Num Lock, Caps Lock, Scroll Lock LEDs are located here.

11. Reset Switch
Located to the right of the Lock LEDs. Press this recessed switch in with a thin object to perform a system reset.

12. Firmware Upgrade Section

- **Firmware Upgrade Port:** The Firmware Upgrade Cable that transfers the firmware upgrade data from the administrator's computer to the B020-008 or B020-016 plugs into this RJ-11 connector.
- **Firmware Upgrade Switch:** During normal operation this switch should be in the NORMAL position. (See p. 21 for firmware upgrading details.)

13. Slide Release
In order to bring the console out, you must first release it by sliding these tabs to the inside. See p. 10 for details on sliding the console in and out.



Front View of B022-016

1. Port LEDs

Port LEDs provide status information about their corresponding CPU Ports. The top row of LEDs corresponds to Ports 1 - 8; the bottom row corresponds to Ports 9 - 16. There are two LEDs for each Port. The left one is the *On-Line* LED; the right one is the *Selected Port* LED:

- An *On-Line* LEDs light ORANGE to indicate that the computer attached to the corresponding port is powered up and running.
- A *Selected* LEDs light GREEN to indicate that the computer attached to the corresponding port is the one that has the KVM focus. The LED is steady under normal conditions, but flashes when its port is accessed under *Auto Scan Mode* (see *F7 SCAN*, page 12).
- When the B022-016 KVM Switch is first powered on, the *On-Line* and *Selected* LEDs blink sequentially as the Switch performs a self-test.

2. Reset Switch

Pressing this switch in performs a system reset. This switch is semi-recessed and must be pushed with a thin object, such as the end of a paper clip or a ballpoint pen. Lights turn on to indicate that the KVM is powered up and ready to operate.

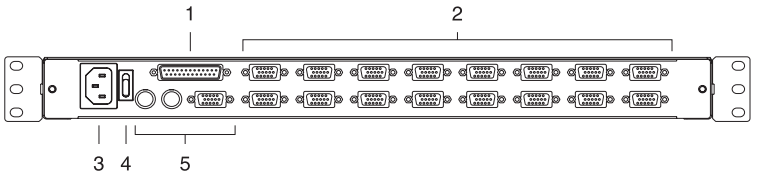
3. Station ID LED

The B022-016's Station ID is displayed here. If this is a Single Station installation (see page 8), or the First Station on a daisy-chained installation (see page 8), the unit has a Station ID of 01. On a daisy-chained installation, the KVM auto-senses its position and displays the Station ID that corresponds to its place in the chain. (see *Port ID Numbering*, page 11 for details).

Rear View of Console KVM Switch (either 16 or 8 ports depending on model)

1. Daisy-Chain Port

When Daisy Chaining Units, the cable plugs in here.



2. CPU Port Section

The cables that link to the computers plug in here.

Note: *The shape of these 15-pin connectors has been specifically modified so that only KVM cables designed to work with this switch can plug in (see the Cables section on p. 4, for details). Do NOT attempt to use ordinary 15 pin VGA connector cables to link these ports to the computers.*

3. Power Socket

This is a standard 3-prong AC power socket. The power cord from an AC source plugs in here.

4. Power Switch

This is a standard rocker switch that powers the unit On and Off.

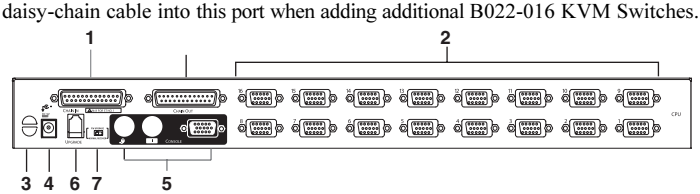
5. External Console Section

For flexibility and convenience, the B020-016/B020-008 supports an independent, external, KVM console. The external console's keyboard, monitor, and mouse cables plug in here.

Rear View for B022-016

1. Daisy-Chain Port

Plug the daisy-chain cable into this port when adding additional B022-016 KVM Switches.



2. CPU Port Section

Plug the KVM cable for each computer into these ports.

Note: *The shape of the 15-pin connectors has been specifically modified so that only the correct KVM cables for this switch can plug in (see* Cables, *page 4, for cable choices). Do* ***NOT*** *attempt to use an ordinary 15-pin VGA connector cable to link a computer to these ports.*

3. Cable Management Slot

A cable tie can be used to gather the cables together and then tied to this slot to help manage the cables.

4. Power Port

The power adapter cable plugs into this port.

5. Console Port Section

The keyboard, monitor and mouse plug in here on a single-stage station or on the first stage of a daisy-chained installation.

6. Firmware Upgrade Port

The *Firmware Upgrade Cable* used to download the firmware upgrade data from the administrator's computer to the KVM switch (see page 20-23), the cable plugs into this RJ-11 port.

7. Firmware Upgrade Recovery Switch

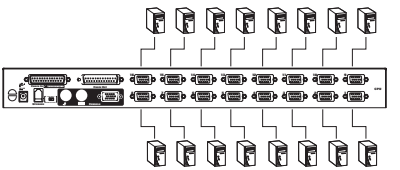
During normal operation and while performing a firmware upgrade, this switch should be in the NORMAL position. See page 23 for details on the use of this switch.

Installation

Ensure that the power to all the devices you will be connecting is turned off. To prevent equipment damage caused by a ground potential difference, ensure that all devices on the installation are properly grounded.

Single-Station Installations:

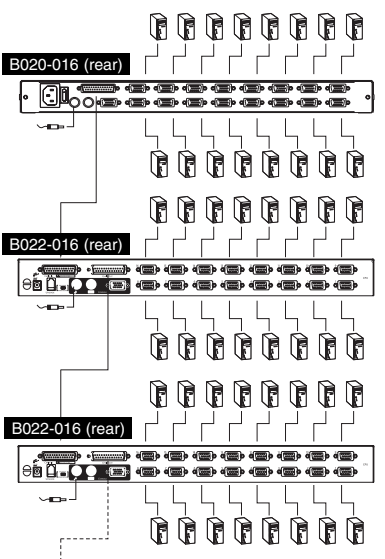
A single-stage installation does not have any KVMs daisy-chained down from the first unit. To set up a single-stage installation, do the following:



1. Use the correct Tripp Lite KVM cable kits (as described in the *Cables* page 4), to connect a computer's Keyboard, Video and Mouse ports to any available port on the KVM switch.
2. On a B022-016 KVM, connect the Keyboard, Mouse and Monitor cables to the console ports on the KVM.
3. Plug the power adapter cable into the KVM's power jack, then plug the power adapter plug into a UPS, surge or other AC power source.
4. Turn on the power to the computers.

Multiple Station (Daisy-Chained) Installation

To control even more computers, up to 31 B022-016 KVM Switches can be daisy-chained down from the First Station.
Note: *As many as 512 computers can be controlled from the unit's integrated console in a complete installation. Tables showing the relation between the number of computers and the number of KVMs needed to control them are provided in Appendix A on Page 24.*



To set up a daisy-chained installation:

1. Ensure that power to all the devices to be connected has been turned off.
2. Use a daisy-chain cable (described in *Cables,* page 4) to connect the *Chain Out* port of the parent unit to the *Chain In* port of the child unit.
3. Use a KVM cable kit (described in *Cables,* page 4) to connect the Keyboard, Video and Mouse ports of a computer to any available port on the KVM switch.
4. Repeat the above steps for any additional B022-016 KVM Switch you wish to add to the chain.
5. Power up the installation according to the following procedure:
   a. Plug in the power adapter for the First Station. Wait a few seconds to allow the unit to determine its Station ID.
   b. Plug in the power adapters for each subsequent Station in the installation in turn (ie. Second Station, then Third Station, etc.). Each B022-016 KVM Switch has an LED display on its front panel to indicate its Station ID (the Station ID for the First Station is **01**, the ID for the Second Station is **02**, the ID for the Third Station is **03**, etc.).

      In each case, wait for the Station ID to be displayed on the Station ID LED before plugging in the next Station.

   c. After all the Stations are up, power on the computers.

LCD OSD (On-Screen Display) Configuration

The LCD OSD allows you to set up and configure the LCD display:

- To open up the LCD OSD main menu, press the button marked *Menu*.
- Use the ▲ and ▼ buttons to navigate and make adjustments. After navigating to a setting choice, use the *Menu* button to bring up the adjustment screen.
- When making adjustments, ▲ increases the value; ▼ decreases the value.
- When satisfied, press *Exit* to return to the OSD main menu.
- When all adjustments have been made, press *Exit* to close the LCD OSD.

The following is an explanation of the settings:

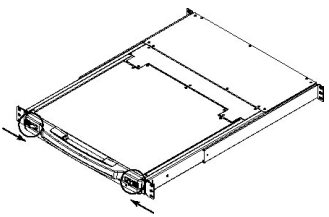
Auto Adjust	Automatically configures all the settings for the LCD panel to the levels the OSD considers optimal.
Brightness	Adjusts the background black level of the screen image.
Contrast	Adjusts the foreground white level of the screen image.
Phase	Adjusts the vertical size of the screen image.
Clock	Adjusts the horizontal size of the screen image.
H-Position	Positions the display area on the LCD panel horizontally (moves the display area left or right).
V-Position	Positions the display area on the LCD panel vertically (moves the display area up or down).
Color Adjustment	Adjusts the color quality of the display. You can adjust the “warmth” value, color balance, etc. Has a further submenu to allow the fine-tuning of the RGB values.
Language	Selects the language that the OSD displays its menus in.
Recall	Returns the adjustments on all menus and submenus to their factory default settings.

Basic Operation

Opening the Console KVM

The console is located under the top cover. To access the console, slide the console module out and raise the cover.

Note: *As a safety precaution, to keep the console from accidentally sliding out, the console is locked into the In position. Before you can pull the console module out, you must release it by pushing the catches on the unit's front panel toward the center of the switch.*

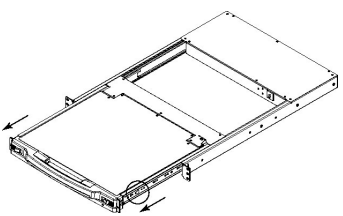


Closing the Console KVM

To slide the console module back in, close the cover and do the following:

1. Pull the safety catches on the unit's side rails toward you and push the module in until it stops.
2. Release the catches; pull the module slightly toward you; then push it all the way in.

Note: *The reason for the two-step procedure is to minimize the chances of pinching your fingers when sliding the module in.*



Port Selection

The KVM switches provide three port selection methods to access the computers on the installation: Manual; OSD (On Screen Display) menus, and Hotkey.

Manual Port Switching

- Press a switch to bring the KVM focus to the computer attached to its corresponding port.
- Press buttons 1 & 2 simultaneously for two seconds to perform a keyboard and mouse reset.
- Press buttons 7 & 8 (B020-008/B020-008-17) or 15 & 16 (B020-016/B020-016-17) simultaneously for two seconds to invoke Auto Scan Mode (see p. 12).

Basic Operation *(continued)*

Hot Plugging

All KVM Switches support hot plugging—components can be removed and added back into the installation by unplugging their cables from the ports without having to shut the switch down. However, in order for Hot Plugging to work properly, these procedures must be followed:

Switching Station Positions

Switch station positions by simply unplugging from the old parent and plugging into a new one. After you do, in order for the OSD menus to correspond to the change, you must reset the OSD.

Hot Plugging CPU Ports

In order for the OSD menus to correspond to the change made, you must manually reconfigure the OSD information for the new Port information. See the *F3 SET* (page 17) and *F4 ADM* (page 18), functions for details.
Note: *If the computer's Operating System does not support hot plugging, this function may not work properly.*

Hot Plugging Console Ports (for B022-016)

Keyboard, monitor, and mouse can all be hot plugged. When hot plugging the mouse:

1. You may unplug the mouse and plug it back in again (to reset the mouse, for example), as long as you use the *same* mouse.
2. If you plug in a different mouse, all the stations and all the computers on the installation must be shut down for 10 seconds, then restarted using the Power Up Sequence described on page 6.)

Note: *If, after hot plugging (or at any other time), there is no response to keyboard and/or mouse input, perform a* Keyboard and Mouse Reset *by pressing in the Reset switch (see page 6).*

Powering Off and Restarting

If one of the KVM switches must be powered Off, do the following before starting it back up:

1. Shut down all the computers that are attached to it.
   Note: *Unplug the power cord of any computer that has the* Keyboard Power On *function. Otherwise, the KVM will still receive power from this computer.*
2. Wait 10 seconds, then plug the KVM switch back in.
3. Once the switch is up, the computers can be powered On.
   Note: *If you have shut down more than one Station, power up the highest Station first and work your way down to the lowest one.*

Port ID Numbering

Each CPU port in an installation is assigned a unique Port ID. The Port ID is made up of two parts: a *Station Number*, and a *Port Number*:

- The *Station Number* is a two-digit number that identifies the switche's position in the daisy chain sequence. This corresponds to the number displayed on the front panel Station ID LED.
- The *Port Number* is a two-digit number which identifies the port on Station that is connected to the computer.
- The Station Number precedes the Port Number.
- Station and Port numbers are always 2 digits, so 1 - 9 becomes 01 - 09. Eg., a computer attached to **Port 7** of **Station 15** has a Port ID of **15-07**.

Port Selection

A Port is selected either by using the keyboard to enter Hotkey combinations, or by using the On-Screen Display (OSD). *Hotkey Port Selection* is discussed in the next section; *OSD Operation* is discussed in detail on pages 15-20.

Hotkeys

Port Control Using Hotkeys

Hotkey Port Control lets you connect to a computer by making the port selection directly from the keyboard. The Hotkey Port Control options are:

- Selecting the Active Port
- Auto Scanning
- Previous/Next Switching

Invoking the Hotkey Mode

1) All Hotkey operations begin by invoking the *Hotkey Mode*. To initiate the Hotkey Mode:

   - Press and hold down the **[Num Lock]** key;
   - Press and release the **[Minus]** key;
   - Release the **[Num Lock]** key:
     [Num Lock] + **[-]** or **[Num Lock]** + **[*]**

   Note: *1. The **[-]** or **[*]** key must be released within one half second, otherwise the Hotkey mode is cancelled and it has no effect.*
   *2. We recommend using **[Num Lock]** + **[-]** and have continued to use it in the rest of these instructions. You may use **[Num Lock]** + **[*]** if you prefer.*

2) When Hotkey Mode is active:

   - The Num Lock, Caps Lock, and Scroll Lock LEDs flash in succession to indicate that the Hotkey mode is active. They stop flashing and revert to normal status when Hotkey Mode is exited.
   - A Command Line appears on the monitor screen. The command line prompt is the word *Hotkey:* in yellow text on a blue background. It displays the subsequent Hotkey information that is keyed in.
   - Ordinary keyboard and mouse functions are suspended - only Hotkey compliant keystrokes and mouse clicks (described in the sections that follow) can be input.

3) Pressing **[Esc]** exits Hotkey Mode.

Selecting the Active Port

Each CPU port is assigned a Port ID (see *Port ID Numberin*g, p. 11). You can directly access that port by doing the following:

1) Invoke Hotkey Mode with the **[Num Lock]** + **[-]** combination

2) Enter the Port ID

   The Port ID numbers appear on the Command Line as they are entered. To correct a mistake, use **[Backspace]** to erase the wrong number.

3) Press **[Enter]**

   Once **[Enter]** has been pressed, the KVM switches to the designated computer and you automatically exit the Hotkey Mode.

Auto Scanning

When in the Auto Scan mode, the KVM automatically sequences through all the active CPU Ports that are accessible to the currently logged on User (see *Scan/Skip Mode* of the OSD **F3 SET** function, page 17). The duration of each connection is user defined. Auto Scanning enables the whole system to be monitored.

Setting the Scan Interval

The amount of time the KVM remains on each port during Auto Scan is set using the *Scan Duration* setting of the OSD's **F3 SET** function (see page 17). The scan interval can be changed prior to activating Hotkey Auto Scanning by performing the following:

1) Invoke Hotkey Mode with the **[NumLock]** + **[-]** combination

2) Key in **[T] [n]**

   [T] is the letter T, and **[n]** is a number from 1-255 that represents the number of seconds for the dwell time. The letter T and the numbers display on the Command Line as you key them in. To correct a mistake, use **[Backspace]** to erase the wrong number.

3) Press **[Enter]**

   After you press **[Enter]**, you automatically exit Hotkey Mode and are ready to invoke Auto Scanning.

Starting Auto Scan

To start Auto Scanning, enter the following Hotkey combination:

1) Invoke Hotkey Mode with the **[NumLock]** + **[-]** combination

2) Key in **[A]**. After you press **A**, you automatically exit Hotkey Mode and enter Auto Scan Mode.

3) An autoscan can be paused at any time (see below).

4) To exit Auto Scan Mode, press **[Esc]** or **[Spacebar]**.

Note: *While Auto Scan Mode is in effect, ordinary keyboard and mouse functions are suspended - only Auto Scan Mode compliant keystrokes and mouse clicks can be input. You must exit Auto Scan Mode in order to regain normal control of the console.*

Pausing in Auto Scan

While in Auto Scan Mode, the scan can be paused in order to keep the focus on a particular computer either by pressing **P** or with a Left Click of the mouse. During the time that Auto Scanning is paused, the Command Line displays: **Auto Scan: Paused.**

In many cases *Pausing* is more convenient than *Exiting* the Auto Scan Mode because when you Resume scanning while in *Pause*, you start from where you left off. If you *Exited* and restarted, scanning would start from the very first computer on the installation.

To resume Auto Scanning, press any key or left click. Scanning continues from where it left off.

Skip Mode

This feature allows you to manually sequence between computers in order to monitor them. This manual version of the Auto Scan mode lets you dwell on a particular port for as long as you like. To invoke Previous/Next Switching, key in the following Hotkey combination:

1) Invoke Hotkey Mode with the **[NumLock]** + **[-]** combination

2) Key in [Arrow] refers to the arrow keys on the keyboard. After you press [Arrow], you automatically exit Hotkey Mode, and enter Skip Mode where you can switch ports as follows:

   ←Skips from the current port to the first accessible port previous to it. (See *Scan/Skip Mode*, page 17, or information regarding accessible ports.)

   →Skips from the current port to the next accessible port.

   ↑Skips from the current port to the last accessible port of the previous Station.

   ↓Skips from the current port to the first accessible port of the next Station.

3) To exit Skip Mode, press **[Esc]**

Note: *1. Once Skip Mode has been invoked, until you exit, you can keep on skipping simply by pressing an Arrow key. You don't have to use the **[NumLock]** + **[-]** combination again.*

2. While Skip Mode is in effect, ordinary keyboard and mouse functions are suspended—only Skip Mode compliant keystrokes can be input. You must exit Skip Mode in order to regain normal control of the console.

Hotkey Beeper Control

The Beeper (see Activate Beeper, page 18) can be Hotkey toggled On and Off.
To toggle the Beeper, key in the following Hotkey combination:

1) Invoke Hotkey Mode with the **[NumLock]** + **[-]** combination

2) Key in **[B]**

   After you press **[B]**, the Beeper toggles On or Off. The Command Line displays *Beeper On* or *Beeper Off* for one second; then the message disappears and you automatically exit Hotkey Mode.

Hotkey Summary Table

Hotkey Sequence – Starting with **[Num Lock]** + **[-]** or **[Num Lock]** + **[*]** then …	
[Port ID] [Enter]	Switches access to the computer connected to that Port ID.
[T] [n] [Enter]	Sets the Auto Scan interval to **n** seconds - where **n** is a number from 1 - 255.
[A]	Invokes Auto Scan Mode.
[←]	Invokes Skip Mode and skips from the current port to the first accessible port previous to it.†
[→]	Invokes Skip Mode and skips from the current port to the next accessible port.†
[↑]	Invokes Skip Mode and skips from the current port to the last accessible port of the previous Station.†
[↓]	Invokes Skip Mode and skips from the current port to the first accessible port of the next Station.†
[B]	Toggles the Beeper On or Off.

† Once Skip Mode has been invoked and until you exit, you can keep on skipping simply by pressing an Arrow key. You don't have to use the **[NumLock]** + **[-]** combination again.

OSD (On-Screen Display) Operation

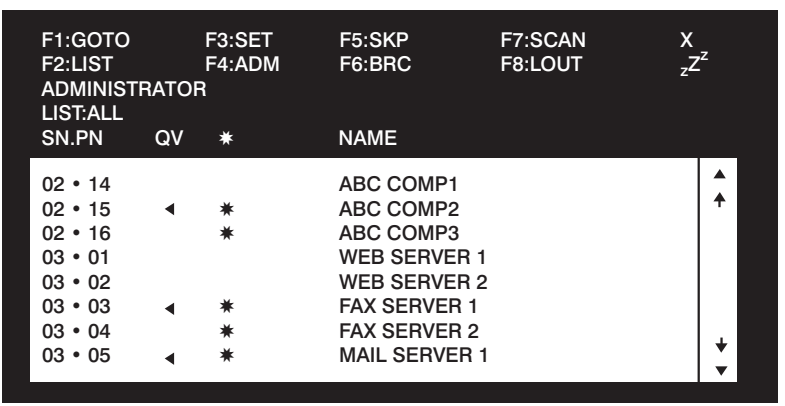
OSD Overview

The On Screen Display (OSD) is used for all computer control and switching procedures. All procedures start from the OSD Main Menu. To pop up the Main Menu, tap the **[Scroll Lock]** key twice.

*__Note:__ You can change the Hotkey from the **[Scroll Lock]** key to the **[Ctrl]** key (see OSD Hotkey, page 17. In this case you tap the **[Ctrl]** key twice. The same [Ctrl] keys must be used (ie. both the left and the right).*

The OSD uses a two-level (Administrator / User) password system. Before the OSD Main Screen appears, a dialog box asks for your password. If the password function has been set, a password must be entered in order access the system.

If this is the first time that the OSD is being run, or if the password function has not been set, simply press **[Enter**] to proceed. The OSD Main Screen comes up in Administrator Mode. In this mode, you have administrator privileges, with access to all Administrator and User functions. In addition, you can set up operations including password authorization for the future.



When you invoke the OSD, a screen similar to the one above appears:

__Note:__ 1. The diagram depicts the Administrator's Main Screen. The User Main Screen does have the F4 and F6 functions, since they can't be accessed by ordinary Users and are reserved for the Administrator.
2. OSD always starts in List view, with the highlight bar at the same position it was when it was last closed.
3. Only the ports that have been set accessible by the Administrator for the currently logged in User are visible (see SET ACCESSIBLE PORTS, page 19, for details).

OSD Navigation

- To close the menu and deactivate OSD, Click the **[X]** at the upper right corner of the OSD Window; or press **[Esc]**.
- To Logout, press **[F8]**, or Click **F8**, on the OSD Menu Bar or click the **zZz** symbol at the upper right hand corner of the OSDD Screen.
- To move up or down one line at a time, Click the Up and Down Triangle symbols (▼ ▲) or use the Up and Down Arrow Keys. If there are more entries than appear on the screen, the screen will scroll.
- To move up or down one screen at a time, Click the Up and Down Arrow symbols (⇞⇟), or use the **[Pg Up]** and **[Pg Dn]** keys. If there are more entries than appear on the screen, the screen will scroll.
- To activate a port, Double Click it, or move the Highlight Bar to it then press **[Enter]**.
- After executing any action, you automatically go back to the menu one level above.

OSD Main Screen Headings

Heading	Explanation
SN-PN	This column lists the Port ID numbers (Station Number - Port Number) for all the CPU ports on the installation. The simplest method to access a particular computer is move the Highlight Bar to it, then press **[Enter]**.
QV	An arrow in this column indicates that the corresponding port is selected for Quick View scanning (see *Set Quick View Port*s, page 18).
✷	A Sun symbol in this column indicates that the corresponding computer is both powered On and On Line.
NAME	If a port has been given a name (see *Edit Port Names*, page 18), its name appears in this column.

OSD Functions

OSD functions are used to configure and control the OSD. You can:

- rapidly switch to any port
- scan selected ports only
- limit the list you wish to view
- designate a port as a Quick View Port
- create or edit a port name
- make OSD setting adjustments.

To access an OSD function:

1) Either Click a Function Key field on the screen, or press a Function Key on the keyboard.
2) Make your choice in the sub-menus that appear by either Double Clicking it, or moving the Highlight Bar to it, then pressing **[Enter]**.
3) Press **[Esc]** to return to the previous menu level.

F1 Go To (GOTO)

Click the **F1** field or press **[F1]** to activate the GOTO function. GOTO allows you to switch directly to a port either by keying in the port's *Name*, or its *Port ID.*

- To use the Name, enter **[1]**; key in the port's Name; then press **[Enter]**.
- To use the Port ID, enter **[2]**; key in the *Port ID*; then press **[Enter]**.

Note: *A partial Name or Port ID can be entered. The screen will show all the computers that match the Name or Port ID pattern AND that the User is allowed to access (see* SET ACCESSIBLE PORTS*, page 18. This disregards the current List settings (see* F2 LIST*, below, for details).*

To return to the OSD Main Menu without making a choice, press [Esc].

F2 List Ports (LIST)

This function lets you tailor the list of ports the OSD will display on the Main Screen. Many OSD functions will only operate on computers selected from the Listing on the Main Screen using this function. The submenu choices and their meanings are given in the table below:

Choice	Meaning
ALL	Lists all of the ports on the installation.
POWERED ON	Lists only the ports that have their attached computers Powered On.
QVIEW*	Lists only the ports that have been selected as Quick View Ports (see *SET ACCESSIBLE PORT*S, page 19)
QVIEW + POWERED ON*	Lists only the ports that have been selected as Quick View Ports (see *SET QUICK VIEW PORT*S, page 18), and that have their attached computers Powered On.

***** These items only show up on the Administrator's screen, since only the administrator has *Quick View* setting rights (see *SET QUICK VIEW PORTS*, page 18, for details).

Move the Highlight Bar to the desired choice and press **[Enter]**. An icon appears next to the choice to indicate that it the one currently selected.

F3 Set Environment (SET)

This function allows each User and the Administrator to set up their own working environment. A separate profile for each is stored by the OSD and is activated according to the Username that was provided during Login.

To change a setting:

1) Double Click the item; or move the highlight bar to it and press **[Enter]**

2) After you select an item, a submenu with more choices will appear. To make a selection, either double-click a choice or move the Highlight Bar to the desired place and press **[Enter]**. An icon will appear beside the selected choice to identify it. The settings are explained in the following table:

Setting	Function
OSD HOTKEY	Select the Hotkey that activates the OSD function: use either **[Scroll Lock] [Scroll Lock]** or **[Ctrl] [Ctrl]**. Since the Ctrl key combination may conflict with programs running on the computers, the default is the Scroll Lock combination.
PORT ID DISPLAY POSITION	Position the Port ID identifier anywhere on the screen. The default is the upper right corner. Use the Mouse or the Arrow Keys plus **[Pg Up]**, **[Pg Dn]**, **[Home]**, **[End]**, and **[5]** (on the numeric keypad with Num Lock off), to position the Port ID display, then Double Click or press **[Enter]** to lock the position and return to the Set submenu. ***Note:*** *The position for the ID identifier is set independently for each port on the installation; the choice specified here only applies to the port for computer that is currently active.*
PORT ID DISPLAY DURATION	Determine the amount of time a Port ID appears on the monitor once a port change has taken place. The choices are: **User Defined** – user defined amount of time (from 1 - 255 sec.) **Always On** - which displays the Port ID at all times. If choosing User Defined, key in the number of seconds and press **[Enter]**. The default is 3 Seconds. A setting of 0 (zero) disables this function.
PORT ID DISPLAY MODE	Select how the Port ID is displayed: the Port Number alone **(PORT NUMBER)**; the Port Name alone **(PORT NAME)**; or the Port Number plus the Port Name **(PORT NUMBER + PORT NAME)**. The default is **(PORT NUMBER + PORT NAME)**.
SCAN DURATION	Determine how long each port is connected as the KVM cycles through the ports in Auto Scan Mode (see F7 SCAN page 20). Key in a value from 1 - 255 seconds, then press [Enter]. The default is 5 seconds; a setting of 0 (zero) disables the function.
SCAN/SKIP MODE	Select the computers that will be accessed under Skip Mode (see F5 SKP, page 19), and Auto Scan Mode (see F7 SCAN, page 20). Choices are: ALL - All the Ports which have been set Accessible (see SET ACCESSIBLE PORTS, page 19; POWERED ON – Only those Ports which have been set Accessible and are Powered On; QUICK VIEW - Only those Ports which have been set Accessible and have been selected as Quick View Ports (see SET QUICK VIEW PORTS, page 18); QUICK VIEW + POWERED ON - Only those Ports which have been set Accessible and have been selected as Quick View Ports and are Powered On. The default is ALL. ***Note:*** *The Quick View choices only show up on the Administrator's screen, since only the administrator has Quick View setting rights (see SET QUICK VIEW PORTS, page 18).*
SCREEN BLANKER	If the console is left idle for the amount of time set with this function, the screen is blanked. Key in a value from 1 - 30 minutes, then press **[Enter]**. A setting of 0 disables this function. The default is 0 (disabled).
HOTKEY COMMAND MODE	Enables / Disables the Hotkey Command function if a conflict with programs running on the computers occurs.

F4 Administrator (ADM)

F4 is an Administrator-only function. It allows the Administrator to configure and control the overall operation of the OSD. To change a setting Double Click it or use the Up / Down Arrow Keys to move the highlight bar to the item and press **[Enter]**.

After an item has been selected, a submenu with additional choices will appear. Either Double Click the desired choice, or move the Highlight Bar to it and press **[Enter]**. An icon appears beside the selected choice to identify it. The settings are explained in the following table:

Setting	Function
SET USERNAME AND PASSWORD	Sets the Usernames and Passwords for the Administrator and Users: One Administrator and four User passwords can be set. After selecting one of the User fields or the Administrator field, a screen allows you to key in your password. The password may be up to 12 characters long, and can consist of any combination of letters and numbers (A - Z, 0 - 9). Key in the Username and Password for each individual and press **[Enter]**. Use the backspace key to erase letters or numbers in order to modify or delete a Username and/or Password.
SET LOGOUT TIMEOUT	If the console is left idle for the amount of time set with this function, the Operator will be automatically logged out. A login is necessary before the console can be used again. This lets other Operators access the computers if the original has forgotten to log out. To set the timeout value, key in a number from 1 - 180 minutes, then press **[Enter]**. If the number is 0 [zero], this function is disabled. Default is 0 (disabled).
EDIT PORT NAMES	Every port can be given a name to help identify the attached computer. The Administrator can use this function to create, modify, or delete port names. To Edit a port name: Click the desired port, or use the Navigation Keys to move the highlight bar to it, then press **[Enter]**. Key in the new Port Name, or modify/delete the old one. The maximum number of characters allowed for the Port Name is 12. Legal characters include: All alpha characters: **a - z; A - Z** All numeric characters: **0 - 9** **+ - / : .** and **Space** Case does not matter as the OSD displays the Port Name in all capitals no matter how they were entered. When finished editing, press **[Enter]** to have the change take effect. To abort the change, press **[Esc]**.
RESTORE DEFAULT VALUES	Undo all changes and return to the original default settings using this function. The only exception is the Names settings assigned to the Ports. These remain.
CLEAR THE NAME LIST	This function is similar to Restore Default Values. The difference is that it also clears the Names settings along with undoing all changes and returning the setup to the original default settings.
ACTIVATE BEEPER	Choices are **Y** (for Yes), or **N** (for No). When activated, the beeper sounds whenever a port is changed; the Auto Scan function is activated (see F7 SCAN, page 20); an invalid entry is made on an OSD menu; or the default is **Y** (activated).
SET QUICK VIEW PORTS	Allows the Administrator to select which Ports are to be Quick View ports. To select/deselect a port as a Quick View Port, Double Click the desired port, or use the Navigation Keys to move the highlight bar to it, then Press **[Enter]**. An arrow is displayed in the QV column on the Main Screen to indicate that a port has been selected as a Quick View Port. The arrow disappears when a port is deselected. If one of the Quick View options is chosen for the LIST view (see F2 LIST, page 16), only a Port that has been selected here will display on the List. If one of the Quick View options is chosen for Auto Scanning (see SCAN/SKIP MODE, page 17), only a Port that has been selected here will be Auto Scanned. The default is for no ports to be selected.

Setting	Function
SET ACCESSIBLE PORTS	Allows the Administrator to define a User's access to the computers in the installation on a Port-by-Port basis. For each User, select the target Port and press the **[Spacebar]** to cycle through the choices: **F** (Full access), **V** (View Only), or blank. Repeat until all access rights have been set, then press **[Enter]**. The default is **V** for all users on all Ports. **Note:** A blank setting means that access rights have not been granted. The Port will not appear on the User's LIST on the Main Screen.
RESET STATION IDS	The OSD settings will not correspond to a new configuration if the position of one of the Stations in the daisy chain is changed. This function directs the OSD to rescan the Station positions of the entire installation and updates the OSD so that the OSD Station information corresponds to the new physical layout. **Note:** Only the Station Numbers get updated. All Administrator settings (such as Set Accessible Ports, Set Quick View Ports, etc.), for all of the computers affected by the change, have to be manually redone. The only exception to this is Port Names.
FIRMWARE UPGRADE	In order to upgrade the KVM's firmware (see page 21-24), the Firmware Upgrade Mode must be invoked.
SET CONSOLE MODE	This setting selects which consoles (internal/external) are enabled: **0** Both consoles enabled **1** LCD console only **2** External console only Use the spacebar to cycle to the choice you want. The default is 0.

F5 Skip (SKP)

Invokes the Skip (SKP) Mode by clicking the **F5** field or pressing **[F5]**. This function skips backward or forward—switching the console focus from the currently active computer port to the previous or next available one.

- The selection of computers to be available for Skip Mode switching is made with the *Scan/Skip Mode* setting under the **F3 SET** function (see page 17).
- When in the Skip Mode, press:
  - **[←]** to switch to the previous computer in the List
  - **[→]** to switch to the next computer in the List
  - **[↑]** to switch to the last computer on the previous station in the List
  - **[↓]** to switch to the first computer on the next station in the List.

  Note: *The Skip mode will only move to the previous or next available computer in the Scan/Skip Mode selection (see page 16).*
- If a Port has been selected for *Scan/Skip Mode*, a Left/Right Triangle symbol appears before its Port ID Display (when the focus switches to that port), to indicate so.
- The console will not function while Skip Mode is in effect. The Skip Mode must be exited in order to regain control of the console.
- To exit Skip Mode, press **[Esc]** or **[Spacebar]**.

F6 Broadcast Mode (BRC)

F6 is an Administrator only function. Clicking the **F6** field, or pressing **[F6]**, invokes Broadcast (BRC) Mode. When this function is in effect, commands sent from the console are broadcast to all available computers on the installation.

This function is particularly useful for operations that need to be performed on multiple computers, such as performing a system-wide shutdown, installing or upgrading software, etc.

BRC works in conjunction with the **F2 LIST** function. The LIST function (see page 16) lets you tailor the list of ports the OSD will display on the OSD Main Screen. When a command is broadcast, it is done only to the Ports currently displayed on the OSD Main Screen.

- A Speaker symbol appears before the Port ID Display to indicate BRC Mode is in effect.
- The mouse will not function while the BRC Mode is in effect. You must exit the BRC Mode in order to regain control of the mouse.
- To exit BRC Mode, invoke the OSD (with the OSD Hotkey), then Click the **F6** field, or press **[F6]**.

F7 Scan (SCAN)

Invoke the Auto Scan Mode by clicking the **F7** field or pressing **[F7]**. This function allows you automatically cycle through available computers at regular intervals so that you can monitor their activity without having to take the trouble of switching yourself.

- The selection of computers to be included for Auto Scanning is made with the Scan/Skip Mode setting under the **F3 SET** function (see page 17).
- The amount of time that each Port displays for is set with the Scan Duration setting under the **F3 SET** function (see page 17). When you want to stop at a particular location, press the [Spacebar] or [Esc] to stop scanning.
- If the scanning stops on an empty port, or one where the computer is attached but is powered Off, the monitor screen will be blank, and the mouse and keyboard will have no effect. After the *Scan Duration* time is up, the Scan function will move on to the next port.
- As each computer is accessed, an **S** appears in front of the Port ID display to indicate that it is being accessed under *Auto Scan Mode*.
- While Auto Scan Mode is in effect, the console will not function. You must exit Auto Scan Mode in order to regain control of the console.
- While in Auto Scan Mode, the scanning can be paused in order to keep the focus on a particular computer either by pressing **P**, or with a left click of the mouse.
- To exit Auto Scan Mode, press the **[Spacebar]** or **[Esc].**

F8 Log Out (LOUT)

Clicking the **F8** field or pressing **[F8]** logs you out of OSD control of the computers, and blanks the Console screen. This is different from simply pressing **[Esc]** to deactivate the OSD. With this function you must log in again to regain access to the OSD, whereas with **[Esc]** all you have to do to reenter the OSD is tap the OSD Hotkey.

Note: *1. When you reenter the OSD after logging out, the screen stays blank except for the OSD Main Menu. You must input your password before you can continue.*

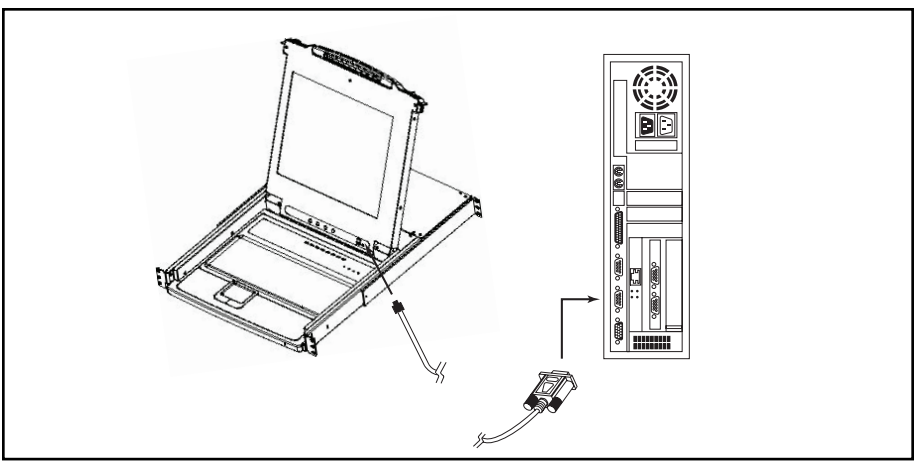
*2. If you reenter the OSD after logging out, and immediately use **[Esc]** to deactivate the OSD without having selected a port from the OSD menu, a Null Port message displays on the screen.The OSD Hotkey will bring up the Main OSD Screen.*

Firmware Upgrade Utility

Before You Begin

To prepare for the firmware upgrade, do the following:

1. From a computer that is not part of your KVM installation go to our Internet support site and choose the model name that relates to your device to get a list of available Firmware Upgrade Packages.
2. Choose the Firmware Upgrade Package you want to install (usually the most recent), and download it to your computer.
3. Use the Firmware Upgrade Cable (provided with this unit), to connect a COM port on your computer to the Firmware Upgrade Port of your switch.



Note: *On a daisy chained installation, the chained stations will automatically receive the upgrade via the daisy chain cables.*

4. Shut down all of the computers - but not the Stations - on your KVM installation.
5. From your KVM switch console, bring up the OSD (see p. 15-20) and select the F4ADM function.
6. Scroll down to **FIRMWARE UPGRADE**. Press **[Enter]**, then press **[Y]** to invoke Firmware Upgrade Mode (see p. 22.) For your reference, the current firmware upgrade version displays on the screen.

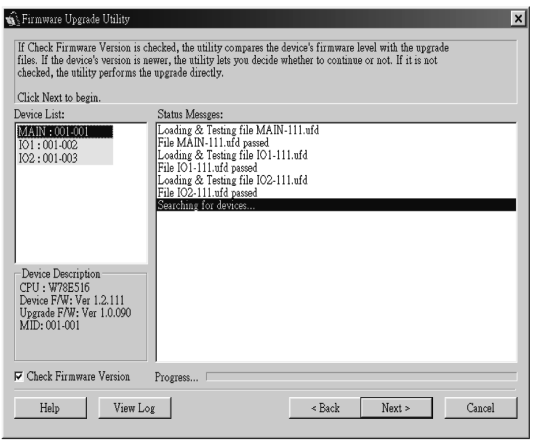
Starting the Upgrade

To upgrade your firmware:

1) Run the downloaded Firmware Upgrade Package file, either by double licking the file icon or by opening a command line and entering the full path to it. The Firmware Upgrade Utility *Welcome* screen appears.

2) Read and *Agree* to the License Agreement (click the **I Agree** radio button).

3) Click **[Next]** to continue. The Firmware Upgrade Utility main screen appears:

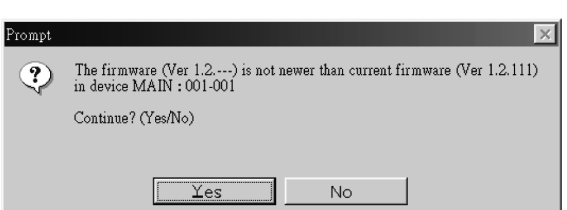

Firmware Upgrade Utility
If Check Firmware Version is checked, the utility compares the device's firmware level with the upgrade files. If the device's version is newer, the utility lets you decide whether to continue or not. If it is not checked, the utility performs the upgrade directly.
Click Next to begin.
Device List:
MAIN : 001-001
IO1 : 001-002
IO2 : 001-003
Status Messges:
Loading & Testing file MAIN-111.ufd
File MAIN-111.ufd passed
Loading & Testing file IO1-111.ufd
File IO1-111.ufd passed
Loading & Testing file IO2-111.ufd
File IO2-111.ufd passed
Searching for devices...
Device Description
CPU : W78E516
Device F/W: Ver 1.2.111
Upgrade F/W: Ver 1.0.090
MID: 001-001
Check Firmware Version
Progress...
Help
View Log
< Back
Next >
Cancel

The Utility inspects your installation. All the devices capable of being upgraded by the package are listed in the *Device List* panel.

If you select a device in the list, its description appears in the *Device Description* panel.

4) As you select devices, a detailed description of each appears in the *Device Description* panel.

5) After you have made your selection(s), Click **[Next]** to perform the upgrade. If you enabled *Check Firmware Version*, the Utility compares the device's firmware levels with that of the upgrade files. If it finds that the device's version is higher than the upgrade version, it brings up a dialog box informing you of the situation and gives you the option to Continue or Cancel.

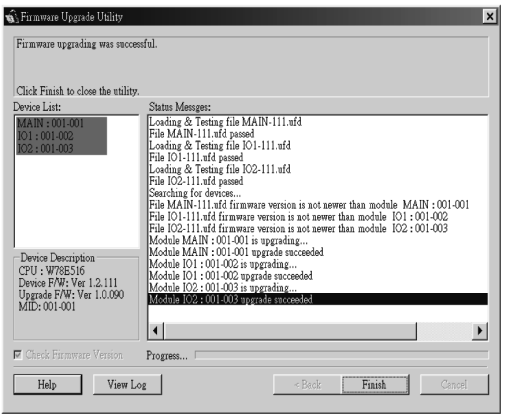


If the *Check Firmware Version* is not enabled, the Utility installs the upgrade files without checking whether they are a higher level version.

As the Upgrade proceeds status messages appear in the Status Messages panel, and the progress toward completion is shown on the *Progress* bar.

Upgrade Succeeded

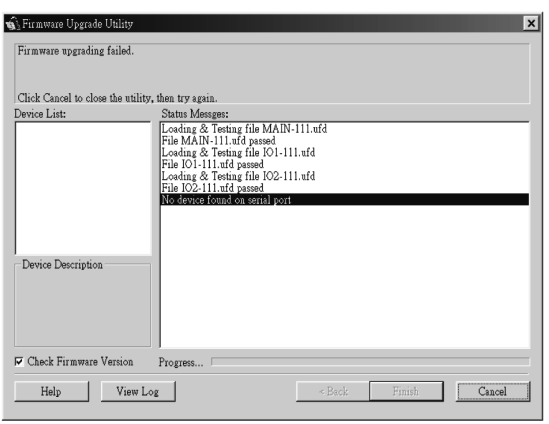
After the upgrade has completed, a screen appears to inform you that the procedure was successful:


Firmware Upgrade Utility
Firmware upgrading was successful.
Click Finish to close the utility.
Device List:
MAIN : 001-001
IO1 : 001-002
IO2 : 001-003
Status Messges:
Loading & Testing file MAIN-111.ufd
File MAIN-111.ufd passed
Loading & Testing file IO1-111.ufd
File IO1-111.ufd passed
Loading & Testing file IO2-111.ufd
File IO2-111.ufd passed
Searching for devices...
File MAIN-111.ufd firmware version is not newer than module MAIN : 001-001
File IO1-111.ufd firmware version is not newer than module IO1 : 001-002
File IO2-111.ufd firmware version is not newer than module IO2 : 001-003
Module MAIN : 001-001 is upgrading...
Module MAIN : 001-001 upgrade succeeded
Module IO1 : 001-002 is upgrading...
Module IO1 : 001-002 upgrade succeeded
Module IO2 : 001-003 is upgrading...
Module IO2 : 001-003 upgrade succeeded
Device Description
CPU : W78E516
Device F/W: Ver 1.2.111
Upgrade F/W: Ver 1.0.090
MID: 001-001
Check Firmware Version
Progress...
Help
View Log
< Back
Finish
Cancel

Click **Finish** to close the Firmware Upgrade Utility.

Upgrade Failed

If the upgrade failed to complete successfully, a dialog box appears asking if you want to retry. Click **Yes** to retry. If you click **No**, the *Upgrade Failed* screen appears:



Click **Cancel** to close the Firmware Upgrade Utility. See the next section, *Firmware Upgrade Recovery*, for how to proceed.

Firmware Upgrade Recovery

A firmware upgrade recovery is required in any of the following situations:

- When you invoke Firmware Upgrade Mode (see page 22), but decide not to proceed with the upgrade.
- When the main board firmware upgrade fails.
- When the I/O firmware upgrade fails.

To perform a firmware upgrade recovery, do the following:

1) Slide the *Firmware Upgrade Recovery Switch* (see page 7) to the **Recover** position.
2) Power off and restart the switch according to the instructions given in the *Powering Off and Restarting* section (page 11).
3) Slide the *Firmware Upgrade Recovery Switch* back to the **Normal** position.
4) Repeat Step 2.

Note: If one of the slave units fails to upgrade successfully, unchain it from the installation and perform the recovery and upgrade operation independently. After it has been successfully upgraded, plug it back into the chain.

Appendix A

Computer Connection Table

The following tables indicate the relationship between the number of Tripp Lite KVMs and the number of computers that they control:

KVM	CPUs	KVM	CPUs	KVM	CPUs	KVM	CPUs
1 x A	1-16	A + 8B	129-144	A + 16B	257-272	A + 24B	385-400
A +B	17-32	A + 9B	145-160	A + 17B	273-288	A + 25B	401-416
A + 2B	33-48	A + 10B	161-176	A + 18B	289-304	A + 26B	417-432
A + 3B	49-64	A + 11B	177-192	A + 19B	305-320	A + 27B	433-448
A + 4B	65-80	A + 12B	193-208	A + 20B	321-336	A + 28B	449-464
A + 5B	81-96	A + 13B	209-224	A + 21B	337-352	A + 29B	465-480
A + 6B	97- 112	A + 14B	225-240	A + 22B	353-368	A + 30B	481-496
A + 7B	113-128	A + 15B	241-256	A + 23B	369-384	A + 31B	497-512

A = B020-016, B020-016-17, B022-016; B = B022-016

OSD Factory Default Settings

The factory default settings are as follows:

Setting	Default
OSD Hotkey	[Scroll Lock] [Scroll Lock]
Port ID Display Position	Upper Left Corner
Port ID Display Duration	3 Seconds
Port ID Display Mode	The Port Number plus the Port Name
Scan Duration	5 Seconds
Scan/Skip Mode	All
Screen Blanker	0 (Disabled)
Logout Timeout	0 (Disabled)
Accessible Ports	F (Full) for all users on all ports
Beeper	Y (Activated)

Troubleshooting

Symptom	Possible Cause	Action
Erratic behavior.	Unit not receiving enough power.	Check that the Power Adapter supplied with the unit is plugged in and functioning properly.
Keyboard and/or Mouse not responding on B022-016.	Improper mouse and/or keyboard reset.	Unplug the cable(s) from the console port(s), then plug it/them back in.
All Station IDs display as 01.	Station 1 has lost power.	Wait a few seconds for the system to reinitialize the station sequence and display the proper IDs

Specifications

Function		B020-008/ B020-008-17	B020-016/ B020-016-17	B022-016
Computer Connections	Direct	8	16	
	Max	504*	512*	
Port Selection		Push Button OSD (On Screen Display), Hotkeys		
LEDs	On Line	8 (Orange)	16 (Orange)	
	Selected	8 (Green)	16 (Green)	
	Power	1 (Blue)		
	Station ID	NA		2 × 7 segments
Console Connectors	Keyboard	1 × MiniDIN6F		
	Mouse	1 × MiniDIN6F		
	Video	1 × HD15F		
Computer Port Connectors		8 × SPDB-15 F	16 × SPDB-15 F	
Firmware Upgrade		1 × RJ11(F)		
Daisy Chain Ports		1 × DB-25 M		1 × DB-25 M 1 × DB-25 F
Switches		1 × 2-pos. Slide type (for Firmware Upgrade Recovery)		
Scan Interval (OSD Select)		User Specified: 1-255 secs.		
Emulation	Keyboard	PS/2		
	Mouse	PS/2		
Video		for 15": 1024 × 768; DDC2 B for 17": 1280 × 1024; DDC2 B		1920 × 1440; DDC2
Power Consumption		120V 60Hz 24W; 230V 50Hz 24W		DC 9V; 8W (max.)
Operating Temperature		32-120 deg. F		
Storage Temperature		-4 to 140 deg. F		
Humidity		0-80% RH		
Housing		Metal		
Weight		25.5 lbs./26.5 lbs.	26.5 lbs./27.5 lbs.	6.25 lbs.
Dimensions (L × W × H) -in.		19×20.4×1.77 (19" 1U)		19×6.1×1.77 (19" 1U)

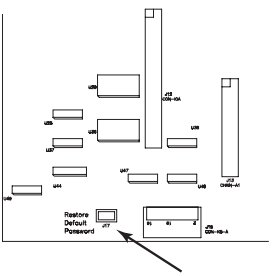
* Via daisy-chaining of B022-016.

Appendix B

Clear Log-in Information

If you are unable to perform an Administrator login (because the Username and Password information has become corrupted, or you have forgotten it), you can clear the login information with the following procedure:

1. Power off the switch and remove the top cover from the unit chassis.
2. Short the jumper labeled Default Password on the switch's main board.



3. Power on the switch.

   When you power the switch on, the following message appears on the LCD display:

   USERNAME AND PASSWORD INFORMATION HAS BEEN CLEARED. PLEASE POWER OFF THE SWITCH, REMOVE THE JUMPER, CLOSE THE CASE, THEN RESTART.

4. After you start back up, the OSD login function acts exactly the way it did the first time the switch was run and you can reset passwords for the Administrators and Users.

Appendix C

Standard Rack Mounting for B022-016

The standard rack mounting brackets that come attached to the B022-016 allow the unit to be installed in standard 1U racks. Simply slide it into the rack and screw it securely in place.

Rack Mounting for Console KVM

The Console KVMs can be mounted in a 1U system rack. For convenience and flexibility, a rack mounting kit that allows several mounting options has been included.

Appendix D

FCC Radio/TV Interference Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. The user must use shielded cables and connectors with this product. Any changes or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

WARRANTY

1-YEAR LIMITED WARRANTY

TRIPP LITE warrants its products to be free from defects in materials and workmanship for a period of one (1) year from the date of initial purchase. TRIPP LITE's obligation under this warranty is limited to repairing or replacing (at its sole option) any such defective products. To obtain service under this warranty, you must obtain a Returned Material Authorization (RMA) number from TRIPP LITE or an authorized TRIPP LITE service center. Products must be returned to TRIPP LITE or an authorized TRIPP LITE service center with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. This warranty does not apply to equipment which has been damaged by accident, negligence or misapplication or has been altered or modified in any way. EXCEPT AS PROVIDED HEREIN, TRIPP LITE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser. EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL TRIPP LITE BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, TRIPP LITE is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise.

WARRANTY REGISTRATION

Visit www.tripplite.com/warranty today to register the warranty for your new Tripp Lite product. You'll be automatically entered into a drawing for a chance to win a FREE Tripp Lite product!*

* No purchase necessary. Void where prohibited. Some restrictions apply. See website for details.

The policy of TRIPP LITE is one of continuous improvement. Specifications are subject to change without notice.

1111 W. 35th Street • Chicago, IL 60609 • (773) 869-1234 • www.tripplite.com

200707121 93-2463